GARDEN AND FOREST.

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Landscape Art and the Harlem Speedway.

WE have more than once referred to the extraordinary action of the Park Board, in this city, in giving out contracts for a driveway along two miles of the shore line of Manhattan Island, without consulting their own professional adviser, or any other artist of recognized skill in designing parks. Our readers have been informed that eminent artists, speaking for the associated architects, painters and sculptors of New York, and every newspaper which represents the cultivated public opinion of the city protested against this shameful waste of an opportunity to make a riverside parkway, which, in its beauty, availability and adaptedness to varied public use, would be one of the most valuable of the city's possessions. After many delays and much discussion, in which the commissioners have made it plain that they do not possess even an elementary idea that anything in the nature of design is essential to the proper development of a public pleasure-ground, they suddenly, at their last meeting, passed the following resolution:

Resolved, That this Board, at its next meeting, appoint a landscape-gardener for the speedway, and that all applicants file their testimonials with this Board in time for that meeting.

It was announced also that these applicants would be required to appear in person at the meetings of the committee.

It is charitable to assume that the Park Board is acting in good faith; that its members are really endeavoring to make tardy amends for their neglect to appoint a designer in the beginning, and for their refusal to accept the counsel of their own official designer. But if they imagine that they are complying with the spirit of the request made by the Municipal Art Society and others, and that they are disarming public criticism by doing the right thing now after so long a delay, their resolution shows an astounding ignorance of their duties as trusted custodians of the city's property and a boorish incapacity to appreciate the functions and responsibilities of a landscape-gardener in the broad sense of the term. This resolution proves that here are three reputable citizens who cannot be made to understand that expert ability, taste and skill deserve some consideration, nor that an artist of training, experience and reputation in designing public parks ought to hold a different position as related to such works and to the officers who administer them from that occupied by a day laborer. What the people want, what the people have a right to demand, and what it is the business of the Park Board to supply is an artist of distinction whose name will stand as security that the work done for the city will be worthy of the city. If a new municipal building were to be constructed, even a park commissioner would admit that it might be well to entrust the work to an architect who stands in the front rank of his profession. No one but a park commissioner will contend that a rule equally rigid ought not to be observed in selecting a designer for a public pleasure-ground, which will cost much more money than a building, and be put to daily use by many more persons. Whether or not the men who will appear before the Board on Wednesday will be artists of the proper rank it is hardly necessary to inquire. It would be hard to imagine one of the leading architects in the country—say, one of those who aided in designing the buildings of the Columbian Exposition—standing, hat in hand, before the Park Board, presenting testimonials of his competency from his last employer, and replying to President Clausen as that official cross-questions him to find out how much he knows about architecture.

No doubt, there will be applicants enough for the place, and many of them may be worthy men, but the very fact that they appear as applicants will prove that they do not rank with the leading designers of parks in the country. Plenty of so-called landscape-gardeners can be found who will bring testimonials from some gentleman or lady to the effect that they know how to make lawns and plant shrubbery. But here is a picturesque river-front two miles long to be treated, and provision to be made for the population of the largest city on the continent who will throng thither to witness some spectacle on the river or on the road. The place calls for a man who knows how to do something beyond the laying out of flower-beds. It is true, that contracts have already been given out, but the work will never satisfy the people of New York until these contracts are revised. No one can be trusted to meet the problems thus presented except an expert in designing public works of this character who can confidently assume the responsibility of rectifying mistakes, if any have been made. The city asks not only for a man whose reputation will be a guarantee of the best work, but for one whose self-respect will allow no interference within his special field.

Just at this point lies the consideration which makes this more than a local issue. Here is a fundamental rule which must be established, not only in this city, but in every city of the country, if our parks come up to the full measure of their usefulness and their beauty. A park commissioner has nothing to do with matters of design. He does not make profession of any skill to build a park, or a bridge, or a statue, or a monument, but it is his business to select men for technical work who have proved that they have this skill, and whose judgment should be treated with deference. No one would listen to the advice of Mr. Clausen or Mr. Strauss in relation to a parkway and its surroundings if this advice was opposed to the judgment of Mr. Olmsted or Mr. Vaux, who have furnished examples of park work that have never been excelled. Let us hope that there is no other city in the country where a resolution like the one we have quoted above could have been passed by a park board. But if there is such a city we may be sure that the park commissioners there appreciate neither their duties nor their privileges; that they have no conception of what can be accomplished by artists of genuine creative faculty; that they utterly lack that inbred and instinctive deference to trained and cultivated ability which is an unfailing mark of truly civilized society.

IT is difficult for persons who live in cities, or for those unfamiliar with the woods, to understand the magnitude of such a calamity as the forest-fires in Minnesota and Michigan last month. In a private letter, just received from the former state, the writer says, in alluding to the fires that were especially destructive on the first of September:

People who were not in this region at that time speak of the "Hinckley Fire," seeming to forget that everywhere throughout this state, Wisconsin and Michigan destructive conflagrations were raging at the same time. In explanation of the widespread character of the destruction, Mr. Ayres made a perfectly correct statement in your issue of September 12th when he said that throughout the entire wooded and inhabited region there was fire in nearly every section, that is, in nearly every square mile. I have been riding for two days behind a pair of good horses and have seen little else than blackened stumps, dead saplings and hardwood trees, and the prospect would be the same if I drove for two weeks in any direction from this point. In every little piece of unburned stump land little Pines are starting up, showing how valuable the land would be for the growth of timber but for the liability to fire. On many of the uncut tracts it is hard to start a forest-fire, but the woods have been cut over so rapidly that I can hardly realize that this is the same country through which I passed five years ago. Yet, in spite of all these lessons, and of all that has been said and written on the subject, there are many men living in the woods who are actually ignorant of the fact that there is any law against setting fire to them.

The White Ash.

SOME thirty species of Fraxinus are now recognized, a dozen of them belonging to eastern Asia, and others having their homes in central Asia, in the Himalayas, in the Orient, in northern Africa and in Europe. North America contains about as many species of Ash as all the rest of the world put together, and they are found from Cuba to the extreme north and from ocean to ocean, although the forests of the eastern part of the continent are the richest in species.

The White Ash, Fraxinus Americana, is easily the noblest of the American species, one of the most beautiful of our native trees and one of the most valuable timber-trees of eastern North America. It is common in all the forests as far north as Minnesota and Nova Scotia and as far south as northern Florida and Mississippi, and ranges westward to the Trinity River, Texas, the Indian Territory and Nebraska. It is usually found in rather moist soil, although it does not delight in cold swamps and the low wet banks of streams and lakes, like the Black Ash, F. niger. It grows to its largest size in rich bottom-lands, and is at its best in the basin of the lower Ohio. In the forest it sends up a perfectly straight and slender stem to a great height, and ash-poles not over a foot in diameter and a hundred feet high were often raised as flagstaffs in the campaign when Henry Clay was a Presidential candidate. A full-grown White Ash is occasionally 125 feet high, with a tall columnar trunk six feet in diameter. The grain of the wood is straight, and it is always selected by farmers for a flail-staff or other implement which must be at once light and strong. It is now largely used for making tool-handles, for oars and for the interior finish of buildings, and especially for agricultural implements.

In the open ground the White Ash broadens out into a round-headed tree, though with a height considerably greater than its diameter. The bark of the trunk, which is marked by deep narrow furrows, is dark gray; the dense foliage is a deep, clear green, and in the autumn it turns to a rich chocolate-brown or olive-purple, and sometimes to a pure yellow; in winter the graceful poise of its branches and light, lustrous, bloom-covered branchlets make it attractive still; it grows rapidly, and attracts few destructive insects or fungi, and, altogether, is one of the very best of our native trees for ornamental planting. It is one of the latest of our trees to come into leaf in spring, and while this detracts somewhat from its value as a park-tree, it is a real advantage in trees used for roadside planting, for in our cold wet springs it is not desirable to have any of the sunshine excluded from water-soaked roadways. The European Ash, Fraxinus excelsior, is also a tree which comes late into leaf. This is probably the tree referred to by Tennyson in the well-known lines:

> Why lingereth she to clothe her heart with love,
> Delaying as the tender Ash delays
> To clothe herself, when all the woods are green?

and yet when our White Ash is planted with F. excelsior on the high regions of central Europe it comes into leaf still later than that species, and for this reason it is considered better for forest-planting, since it escapes the late spring frosts, which often destroy the young shoots of the European tree. In forest-planting on the prairies the White Ash grows more slowly, and is less able to resist the droughts than the Green Ash, a variety of Fraxinus Pennsylvanica, which extends westward to the eastern ranges of the Rocky Mountains, Wasach range of Utah and the mountains of eastern Arizona.

The illustration on page 405 is from a photograph taken by Professor J. T. Rothrock of a tree in Chester County, Pennsylvania. It represents, to a certain degree, the woodland form of the White Ash, since the specimen was well grown before the land about it was cleared away, although, undoubtedly, the head is now much broader than it would be if the surrounding trees had not been felled many years ago. The trunk is now fifteen feet ten inches in circumference at four feet above the ground.

Horticulture in Kern Valley, California.

A FEW days ago I visited what is known as the Kern Valley, a portion of the great San Joaquin country, and yet set apart from that by a low watershed and by many physical peculiarities. It is a very remarkable region, the delta of two great rivers, vast sand plains, vast islands of swamps and Willows, vast levels as yet hardly cultivated; everywhere, in the midst of these, are immense orchards, vineyards, fields of Alfalfa and other crops. Four hundred thousand acres hereabout are practically under one management, and this simple fact may be taken to mark the scale upon which matters are carried on in the San Joaquin country.

The homesteads in this district belong, in many cases, to the old plantation type of the better southern classes in the days before the war. One finds areas of six thousand or eight thousand acres, with stately mansions, amid tall, semi-tropic growths of trees and vines. Fields one sees of a thousand acres, and the herds of cattle and horses seem countless. Around such mansions are deer parks, aviaries, broad lawns, swimming-ponds, wide water-ditches full of exotic water-plants. The offices, workshops and men's quarters accommodate a hundred or more employees. The owners spend much of the year elsewhere, but sometimes they come with hosts of friends and live right royally.

From the economic standpoint, these great plantations are of little importance compared with the multitude of small colony homesteads being established in the richer and more accessible lands. Rivers of water are at the disposal of settlers, and the sandy soil admits of subirrigation to an extent that I have seldom witnessed elsewhere. The rapid growth of vegetables of every description and of vines and trees, under these circumstances, is hardly believable, even to a Californian well used to many of the possibilities of his own country. There is an experiment garden at Bakersfield under private management. Here I saw hills of peanuts, each grown from a single kernel, planted June 2d, that averaged four feet across. I saw in August Lima Beans, the second crop on the same soil—that is, there had been Lima Beans planted and grown to maturity, and the ripe beans were then planted alongside the old hills, and were also brought to maturity, all since the spring frosts. I saw taller Corn, Cotton, Okra, Jerusalem Artichokes and many other crops than I have ever seen in any part of the United States.

Everywhere in this noble land there is lavishness, surplus and unmeasured overflow of energies. Men plant on a scale as vast as the valley in which they work. They put down cuttings of Lombardy Poplars along miles of roadways, and in four years are cutting firewood; fifty-acre orchards of one kind of Peach or Pear are seen; 500 acres of Raisin Grapes; miles of avenues, along which rise Palms, huge and columnar, feather-crowned, oriental.

A few notes made by me August 17th will, perhaps, serve to illustrate the soil and climate:

Sweet-potatoes planted in the open ground, June 5th, covered the ground with matted vines. Seed of Japanese Hemp was sown in the open ground June 1st. In sixty days it was over eleven feet high, without branches, in the best condition of fibre; it grew twenty-nine inches in the first twenty-nine days; it grew five inches in the twenty-four hours ending July 2d. Abutilon Avencennæ and Hibiscus esculenta grew after a similar fashion.

All the Cucurbitaceæ flourish as they do in the delta of the Nile. Gourds, Melons, Cucumbers, Squashes soon run wild and become a part of the host of the enemy. An arbor of Muskmelons was a feature of one farmstead I visited.

The rapid growth of vegetables here is leading to careful experiments with drying and packing tomatoes, carrots, beets, parsnips, sweet-potatoes, okra and many other vegetables. Capitalists are becoming interested, and after further experiments will introduce California dried vegetables on a large scale, at first for army and navy use, then for the general market. It is held that the soil and climate offer especial advantages for this industry, because the crop produced per acre is much greater than elsewhere. This seems true of many annual crops, such as Okra, and the development of the industry ought to be rapid.

As I have hinted, this land is one of immense weeds as well as of wonderful horticulture. In fact, one large district was long known as "the weed patch," because giant Malvaceæ, Compositæ, Thistles, Nettles and Brambles made it dreaded by the easy-going pioneers, and they shrank from attacking it. In these subirrigated fields the soil is warm clear through, and is moist three inches below the surface. The weed-seeds ripen, fall and grow immediately, to continue the process indefinitely. Nothing is really more beautiful in all these green and waving lowlands than the occasional wastes islanded in Willows and Cottonwoods along the wide rivers. Here purple and gold flame over shining acres, and no less splendid than the acres of Egyptian Corn and Sorghum are the fields of heavy-fruited vines.

On the older farms there are some very attractive bits of gardening, chiefly for color. The southern Bignonias, Hibiscuses, Crape Myrtles, and especially Oleanders, give the key-note to many a lawn. Winter frosts limit the range of semi-tropic vegetation, but there is enough that is suitable to the district. The Fig, the Vine, the Olive and the Pomegranate are seen everywhere, but the winters are rather cold for the Orange and Lemon, though one finds some old trees. The true citrus districts of Kern Valley, as of the whole San Joaquin, are nearer the foot-hills.

Niles, Calif. *Charles Howard Shinn.*

Native Trees and Shrubs about Montreal, Canada.—III.

CORNUS STOLONIFERA, the Red-osier or Red-stemmed Dogwood or Cornel, is, perhaps, the most common species of its genus in some localities in this region. The colors of the stems vary from deep red, or almost blood-red, to light greenish yellow on different individuals, but are usually dark. The ripe white fruits and flowers are often found on the same plant in August. This species seems so like what is called the Cornus alba, L., of Siberia, that our botanists may yet come to consider one as merely a geographical variation of the other. Forms of our native species have quite as showy stems as the imported kind. C. Baileyi, Coulter & Evans, distinguished and separated from C. stolonifera a few years ago, is, so far as I have seen, so like the latter in many characters, that its specific identity seems questionable at least, especially if the Siberian forms are also taken into consideration. Specimens of C. stolonifera, collected at random at Chateauguay and submitted to one of the authorities, were pronounced as "a form of C. Baileyi, which looks strongly toward C. stolonifera, between which two species there are some hazy forms. All it lacks to be good C. Baileyi is that the lower leaf-surfaces are not woolly." C. paniculata, the panicled Cornel, is common in localities. C. alternifolia, or alternate-leaved Cornel, is frequently seen. C. sericea, the Silky Cornel, is abundant, especially in damp places along roadsides and borders of fields. This is another very variable species as now considered. The plants in this region and in northern Vermont, among other superficial differences, have leaves distinctly narrower and paler on the lower surface, when compared with those growing in southern New England. C. circinata, the round-leaved Cornel, is not rare.

Sambucus racemosa, the early red-berried Elder, which also bears the name of Stinking Elder in the Adirondacks, is common, and the fruit is a favorite food of birds. S. Canadensis, the common Elder, known as the Sweet Elder in the Adirondacks, is plentiful, generally on low ground. Its broad clusters of white flowers begin to be showy about the time the bright red fruit of the preceding species is ripe.

Viburnum lantanoides, the Hobble-bush, or American Wayfaring-tree, the latter name being rarely applied, although given in the botanies, is plentiful in cool woods, particularly where the soil is rocky. In its native habitat it is a beautiful shrub in flower, fruit and leaf, but it is rarely cultivated with success and satisfaction. In some forests it forms almost the only undershrub. Locally it sometimes gets the name of Moosewood, and in the Adirondack Mountains the guides commonly call it "Witch-Hopple," although Dogwood is a name sometimes applied. V. opulus, the High-bush Cranberry, is common on rocky moist soils and on rocky islands in the river. The bright red-colored fruit is sometimes used as a substitute for the true Cranberries, which do not grow here. V. acerifolium, the Maple-leaved Viburnum, is common. V. dentatum, called Arrow-wood, is commonly found growing in similar situations as the silky Cornel and the next species. V. cassinoides, Withe-rod, is common in many localities. V. Lentago, the Sheep-berry or Sweet Viburnum, bears a number of local names. It attains to small tree form, and the fruit, when dead ripe, or after it has been touched with frost, is considered very palatable by many of the inhabitants.

Symphoricarpos racemosus, the Snowberry, grows apparently wild at Chateauguay, but I am uncertain whether it is native or has been transplanted from some other locality.

Lonicera hirsuta, the Hairy Honeysuckle, or what appears to be this species, is rarely found on the south side of the St. Lawrence. L. glauca is common, and is sometimes transplanted into gardens. L. oblongifolia is very rarely found in swampy woods near the river. L. ciliata, the Fly Honeysuckle, is often found in woods, most commonly on decaying logs or stumps.

Diervilla trifida, our rather insignificant representative of the showy Japanese Weigelas, is quite common in some localities, especially on sandy or gravelly banks or borders of streams.

Cephalanthus occidentalis, the Button-bush, is abundant in swamps and along the muddy margins of ponds and sluggish streams and ditches.

As already stated, plants belonging to the family of Heaths or Ericaceæ are rarities in the immediate vicinity of Montreal, although abundant in localities not far away, or within an hour's ride by rail. Occasionally plants may be found along the shores of the St. Lawrence in sandy spots. In such a situation I once found Vaccinium corymbosum on the Nun's Island, at the mouth of the Chateauguay River, but it was afterward destroyed. The fruits of several species of Vaccinium of the Blueberry group are commonly called "Bluets" by the French Canadians. Of

the various species probably V. Canadense yields the largest proportion of the enormous quantities of berries which are annually brought to the markets. Kalmia latifolia has been reported as found within fifty miles to the south-east of Montreal.

Fraxinus Americana, the American or White Ash, is a very common tree. F. pubescens, the Red or Downy Ash, is quite common in some localities. It is sometimes called "Frêne gras" (Fat Ash or Greasy Ash) by the French Canadians because the wood burns easily when quite green and newly cut, this peculiarity not being true of the White Ash. F. viridis, the Green Ash, is no longer recognized as a distinct species in Professor Sargent's *Silva of North America*. It occurs in this region, but there are many intermediate trees to be found which seem to carry the species into F. pubescens, as it is impossible to tell to which type they belong. F. sambucifolia, the Black Ash, is also known as "Frêne gras" by the habitants. It is a common tree in swamps or low grounds or moist rocky places, and grows much larger than F. pubescens. Good straight stems are in demand by the Indians and others for making baskets, hoops, etc.; the wood, with a little manipulation, readily splitting into thin sheets along the line of each annual layer or ring of growth.

Dirca palustris, the Leather-wood, sometimes called Moose-wood, and the "Bois de plomb" of the French Canadians, is frequently found in woods on warm rocky soils. These little shrubs are often stripped of their extremely tough pliant bark, which finds many uses.

Arnold Arboretum. *J. G. Jack.*

Foreign Correspondence.

London Letter.

Rudbeckia nitida.—I saw this plant for the first time in the Botanic Gardens at Oxford a few days ago, under the name of R. columnaris, and, so far as I can make out, it has never before been in cultivation in England. In my opinion it is one of the most beautiful of all Rudbeckias. In the Oxford gardens it was about a yard high, with leathery oblong-lanceolate leaves about six inches long, with a long petiole, except those on the stem, which were sessile. The flower-heads were borne singly on slender naked peduncles, and each head measured eight inches across when flattened out. The dozen or so bright yellow ray-florets droop gracefully around the conical dark brown disks. I see that R. nitida is a native of Texas, Florida, Georgia and Louisiana, and that it is placed next to R. maxima, one of our commonest garden-plants, by Torrey & Gray. The true R. columnaris has pinnatifid leaves and small flower-heads, and is as poor, in a garden sense, as R. nitida is superior.

Helianthus debilis.—This plant, one of the most attractive border-plants at Kew this year, is also called H. cucumerifolius, under which name it is described in Torrey & Gray's *Flora of North America*, where it is said to be a native of Florida, Louisiana and Texas. It is a new plant in English gardens, and is likely to become a favorite now its decorative value is revealed. At Kew it grows to a height of about five feet, forming a bush clothed with heart-shaped, stalked leaves, which are scabrid on both sides and toothed along the margins. The flower-heads are borne singly on long erect naked peduncles, each head being three inches across, the spreading oblong-concave ray-florets being bright deep yellow, darkening to orange at the base, while the disk-florets form a black-brown, button-like centre an inch across. The plant appears to be an annual. It is first-class in every sense.

[Helianthus cucumerifolius is well known in American gardens as one of our best annual Sunflowers.—Ed.]

Senecio Hualtata.—This is a handsome plant of large growth, which has been introduced to Kew by means of seeds sent four years ago from Tucuman. It has proved hardy here, having stood several winters out-of-doors, and it flowered a few weeks ago for the first time. It has a perennial root-stock, from which spring numerous large ovate cordate leaves on long stalks, forming a cluster suggestive of a big Dock. The flower-stems are five feet high, branched, the branches bearing clusters of flowers an inch across, with creamy white ray-florets and an orange-yellow disk. The decorative value of the plant is almost equal to that of the giant S. sagittifolia which Monsieur André introduced from Montevideo two years ago, and which flowered at Kew last year and again this. A figure of S. Hualtata will shortly be published in the *Botanical Magazine*.

Nerine appendiculata.—This new species has flowers of extraordinary formation. Mr. Baker describes it this week in the *Gardeners' Chronicle*, from material supplied by Mr. J. O'Brien, who introduced it from Natal; he says it has a floral structure suggestive of Narcissi. In general characters it is near Nerine flexuosa, under which is now included N. angustifolia pulchella, etc., but it differs in having a ring of strap-shaped processes which spring from the outside bases of the stamens, forming a kind of inner cup or corona. The flowers are red. Similar but smaller appendages to the stamens are found in the very distinct N. pancratioides, which Mr. Baker described three years ago, and which was also imported from Natal by Mr. O'Brien. This species, however, has white flowers and is nearly allied to N. pudica. The Nerines are very useful plants for the greenhouse, and every new addition is most welcome. Hybridists will, no doubt, look sharply after N. appendiculata.

Brunsvigia Josephinæ.—If we could induce this plant to bloom every year it would take rank with the most select of south African bulbous plants. Under cultivation in this country, however, it rarely flowers, consequently it is rarely grown. In some parts of south Africa it is most abundant on the open sandy plains, its large heads of red flowers standing erect among the short scrub, and when withered rolling about in the wind like gigantic Dandelion-heads. There is a plant of it in bloom now in the Cape-house at Kew. It has a bulb about four inches in diameter and a stout semi-terete scape a foot high bearing an umbel of fourteen flowers, each flower being borne on a stiff pedicel nine inches long, the flower itself being three inches long, and in shape and color suggesting the Jacobœa Lily (Sprekelia). Sometimes there are fifty or sixty flowers in an umbel, according to Baker. The whole inflorescence is very suggestive of an elaborate chandelier.

Cyanastrum cordifolium.—This is the sole representative of a new genus of Hæmodoraceæ, founded by Professor Oliver three years ago on a plant discovered in Lagos, west tropical Africa, and figured and described in Hooker's *Icones Plantarum*, t. 1965, where the Professor recommended it as a likely garden-plant for tropical collections. It is now flowering for the first time in one of the stoves at Kew, and although not likely to please growers generally, it is, nevertheless, worth including in choice or botanical collections. It has a creeping root-stock from which spring leaves nine inches high, on erect peduncles eight inches long, the blade six inches long, deeply heart-shaped and colored shining green, of two shades. The flowers, which are purple, are borne on short erect scapes and are an inch across, star-shaped, with six segments.

Gerardias.—I have seen several species of this North American genus of Scrophulariaceæ tried in gardens here, but they have always proved unsatisfactory—no doubt, for the reason stated recently on page 367. The best results have been obtained with G. quercifolia, which belongs to the Dasystorna section of the genus, and which is sometimes happy in English gardens. It is in flower now in Mr. Smith's nursery at Newry, where it is over two feet high and has charming butter-yellow flowers two and a half inches long. This species was introduced about eighty years ago. The beautiful Harveyas, Cycniums and Buttonias, which are natives of south Africa, and some of the Indian species of Pedicularis have also been tried in English gardens, but they come to nothing. Our only chance,

I suppose, is to let them have their host plants, but here the difficulty arises, what the host is being often hypothetical.

Pteris longifolia, var. Mariesi.—This is a very elegant variety of one of the commonest and most useful of garden Ferns. It has been introduced by Messrs. J. Veitch & Sons, who have exhibited it several times this year, and it has been awarded several certificates. It differs from the type in having the pinnæ very narrow and closer together; this gives the fronds a much more elegant and pleasing appearance than the ordinary P. longifolia has. In all other respects it is like the latter, growing just as freely and rapidly under ordinary conditions. P. longifolia is a weed in most ferneries. At Kew it sows itself on brick walls, under stages, in fact, anywhere where the spores can find lodgement, and the plants grow sturdily with no further sustenance than the moisture and what can be got from bricks and mortar. If the new variety will be as accommodating it is certain to be welcomed by all owners of greenhouses.

Lecanopteris carnosa.—Fine living examples of this very remarkable Fern have lately been received at Kew from Mr. Curtis, of Malacca, and they are now likely to become established in cultivation for the first time, I believe. The genus was merged in Polypodium by Hooker & Baker in their *Synopsis Filicum*, but it has since been restored by Mr. Baker, who places it next to Dicksonia and Diparia. Five species have been described, all natives of Malasia. They are remarkable in having a thick, shapeless rhizome, which clings to the branches of trees and in time forms a thick crust around the branch, one specimen at Kew having a crust six inches thick entirely surrounding a piece of tree branch. These rhizomes grow over each other, and they are glaucous green when young, brown-black when old, and covered with mammi-like projections, which mark the points where the pinnate fronds were attached. The old rhizome is of leathery texture, and it is galleried inside like the myrmecophilous Hydnophytums and Myrmecodias which inhabit the same region. Mr. Curtis suggests that the ants are probably necessary to the welfare of the plant, as every specimen he found was the abode of my-

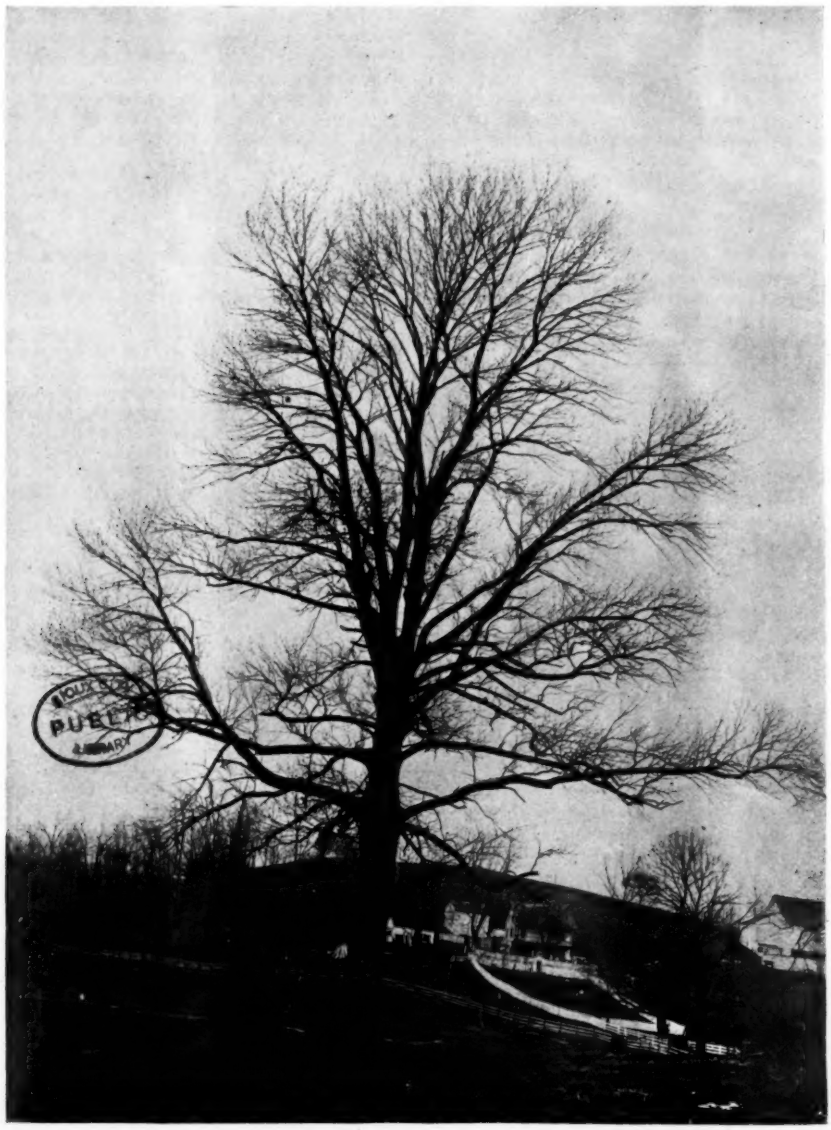

Fig. 64.—White Ash (Fraxinus Americana) in Pennsylvania.—See page 402.

riads of these little creatures. The same theory was held with regard to the Myrmecodias, etc., but this was exploded by the behavior of plants at Kew, which not only grew well without the assistance of ants, but ripened seeds from which plants were raised which formed the fleshy galleried stems, although no ant ever came near them. The appearance of the Lecanopteris is as if the rhizome had been poured on the branch in a plastic condition and thus formed a thick irregular crust all round it. There is no Fern with anything like the same kind of rhizome, and it is of the greatest interest to botanists. The pinnate fronds are of about the same size and texture as the fronds of the common Polypodium vulgare.

London. *W. Watson.*

Plant Notes.

Caryopteris Mastacanthus.—This low, late-flowering shrub is not common in gardens—in American gardens, at least—although it was discovered long ago by Robert Fortune in China, and introduced into European gardens by Veitch & Sons. In the first volume of Garden and Forest Herr Max Leichtlin spoke of it as hardy with him, and in a dry sunny position as far north as Boston it will survive ordinary winters. It is a much-branched shrub, resembling somewhat a Ceanothus in look, and its great value consists in its habit of blooming so late and so profusely. Even where the extremities are winter-killed, a great part of the wood will survive, and, as it flowers on the new wood, it will throw up branches which will bear abundant flowers all through the month of September and until heavy frosts. Its large clusters of lilac-blue flowers are borne in axils of the leaves, and although they are individually small, the corymbs are sufficiently large and abundant to be quite conspicuous. The flowers are slightly fragrant, and the green leaves, hoary white on the under side, give out a strong aromatic odor when bruised. Even where the winter is cold enough to make it advisable to lift the plant and place it in a pit, to be kept over until spring, it is sufficiently striking and distinct to warrant this trouble. It is so easily grown from cuttings that it ought soon to become common.

Polygonum amplexicaule, var. oxyphyllum.—Some of the Polygonums from eastern Asia, like the Japanese P. cuspidatum, and P. Sachaliense, from Saghalien, are pretty well known as strong-growing perennials which can be used in parks and other places where large masses of foliage are needed, and there are others from northern India, with red, pink and rose-colored flowers, which make interesting autumn-blooming plants for rock-work. This Knotweed, which was introduced into American gardens some years ago under the name of the Mountain Fleece, comes from the Himalayas, and is perfectly hardy. It grows four or five feet high, and bears at the summit of each stalk a large open raceme of small white flowers, which have a delicate fragrance. The foliage of the plant suggests rather unpleasantly our wild Smartweed, although it is rather tropical in appearance. The general aspect of the plant, however, is not coarse, especially in early autumn, when it is crowned by its masses of fleecy flowers. It is not at all particular as to soil or exposure, and will flourish almost under any circumstances.

Aconitum autumnale.—We have often called attention to this Monkshood as one of the first-rate herbaceous perennials that flower at this late season. It grows to a height of some three feet, is well furnished with glossy foliage, and bears at the summit branching spikes of very dark blue flowers which last a long time. It is worth saying again, that since this plant blooms at the same time with the White Japanese Anemone, a very pleasing combination can be made of the two. This year, in spite of the dry weather, plants which were not watered at all are showing their beautiful hooded flowers of full size, and they are not only attractive in the border, but useful for cutting. Aconitum autumnale, the name under which it is generally known, is easily multiplied by dividing the roots. Those who have tried sowing the seed as soon as it ripens on plants grown here have found that it germinates much more surely and quickly than imported seed.

Cultural Department.

Autumn-flowering Perennial Plants.—I.

OUR gardens and shrubberies would be much less attractive in the autumn if it was not for the large number of species belonging to the great family of Compositæ which are now in bloom. The predominant shades of color in the flowers of this family are yellow, blue and purple, and at this season the herbaceous border glows with these rich tints. The perennial Sunflowers form a most important group of autumn-flowering plants, and are indispensable for large borders and shrubberies. Many of them are tall and graceful, blooming profusely, and their flowers are especially useful for cutting. They will grow in almost any soil or situation, but to have them in perfection they should be taken up and replanted every second or third year into good soil which is well-manured, as they are gross feeders. We often hear it argued in favor of herbaceous perennials that when once set they need no further attention, but will flourish and bloom and grow better and better for years to come. This lazy notion should be dismissed at once. No flower-garden gives satisfaction unless it is carefully attended to, and hardy perennial plants furnish no exception to the general rule.

The following species and varieties are suitable for borders and planting among shrubs. Helianthus multiflorus plenus, the double Sunflower, grows from four to five feet high, and produces from June to October large double yellow flowers, which are excellent for cutting. H. multiflorus maximus is a tall-growing variety with very large flowers, nearly as large as those of the well-known annual garden forms. H. rigidus spreads quickly and requires plenty of room. It has golden-yellow flowers, and grows about four feet high. H. mollis is a showy species with woolly leaves and pretty yellow flowers. It is a neat plant, growing from four to five feet high, and is worth a place among the most select perennials. H. orgyalis is a distinct species, which attains a height of eight or ten feet; it has graceful lanceolate leaves and numerous small flowers, which are very showy. H. giganteus is another tall, graceful plant, and H. Maximilani, one of the latest to bloom, is also one of the best. Its flowers are a pure golden-yellow, and it is a large handsome plant. H. strumosus, H. doronicoides, H. trachelifolius, H. grosse-serratus, H. tomentosus, H. decapetalus and H. lævigatus are all desirable, and each has special points of merit.

The autumn-blooming Sneezeweed, Helenium autumnale, is a showy, vigorous perennial, about five feet high, and its yellow flowers, often borne in corymbs, last for a long time. H. autumnale pumilum is a desirable dwarf variety with compact habit, and grows about two feet high.

Although our fields and thickets are adorned with Goldenrods at this season, yet there are several which are distinct and showy, and worth a place in our gardens. Solidago rigida, simple unbranched stem; S. speciosa, crowned with its large pyramidal masses of flowers; S. petiolaris, with its wand-like panicle, and S. Drummondii are especially desirable; and perhaps the last, a south-western form, is excelled by none when carefully grown.

The Boltonias are tall autumn-flowering plants, resembling very much our native Asters, the principal difference being in the character of the appendix to the fruit or pappus. They bloom profusely through August, September and October. B. glastifolia, a form of B. asteroides, is the first to bloom here; both plants are grown here side by side, and they look very much alike. The principal difference, from the horticultural point of view, is that B. asteroides blooms about a month later. B. asteroides has stout stems six to seven feet high, and covered with entire lanceolate leaves. The heads are over an inch in diameter, and the ray-flowers are of a whitish color. B. latisquama is a splendid border-plant for back rows, and when planted in large clumps is very effective. A few days ago I saw a bed of this plant sixty feet long by six wide at the Shady Hill Nurseries, Bedford, Massachusetts. The plants were completely covered with flowers, and it was a sight not soon to be forgotten. This plant has stout thick stems, which ordinarily grow about four feet high, but much taller under special care. The showy heads are produced very plentifully, and are about two inches across, and the ray-flowers are of a violet-blue color.

The native Asters, although they are so common, at this

time are, without doubt, the most showy of our late flowers in the garden. They should be more plentifully seen in our gardens, as they come into bloom so late that they help to draw the autumn and spring together. Some seasons we have plants of Aster Shortii in bloom here in November. Asters are effective either in masses or as single plants in our borders. They like good cultivation and should be taken up and replanted every second or third year. During the summer months they should have a liberal supply of water; if they get dry at the roots they lose their lower leaves and, of course, are not nearly as handsome as when clothed with healthy foliage down to the ground. A few of the best species for garden decoration are A. spectabilis, A. patens, A. lævis, A. surculosus, A. Novi-Belgii, var. levigatus, A. Novæ-Angliæ and its varieties, A. sericeus, with leaves covered with a silky white pubescence, A. turbinellus, A. Shortii, with its bright blue flowers and ample leaves, and A. Chapmani. A good late oriental species is A. Tartaricus, which throws up its tall stems to a height of six or seven feet, carrying immense loose panicles of large purplish blue flowers. The plants vary in size and habit, from low compact growths to tall and stately forms eight feet high, and their flowers range in color from pure white to violet, lilac, blue and purple. Many of them have been carefully described and figured in former volumes of Garden and Forest.

Just now the Vernonias, or Iron-weeds, are conspicuous with their large purplish flower-heads. They are tall, stout perennials, from six to seven feet high, and are in flower from the end of August to the middle of October. These showy species, that give satisfaction here as garden-plants, and which are much admired but seldom seen in collections of hardy plants, are V. altissima, V. Noveboracensis and V. Arkansana. Vernonias thrive in rich light soil, and are increased either by seeds, cuttings or division in spring or autumn.

The Mist-flower, Eupatorium cœlestinum, does well here in a sheltered position. It is a low perennial about two feet high, and the heads are produced in compact cymes and are of a bluish color.

Pyrethrum uliginosum is a noble plant, five to six feet high and crowned with large white flowers, which are excellent for cutting. It should have a sheltered position and be planted in deep moist soil.

Senecio pulcher, one of the handsomest of the Groundsels, has large showy, rosy-purple flowers, which are about three inches across. It has stout stems three feet high, with thick fleshy leaves. It is not quite hardy here and requires slight protection in the winter, and is increased by root-cuttings in the spring.

Gaillardia grandiflora is now making a fine display of flowers. The plants are from seed sown in the spring.

Botanic Garden, Harvard University. *Robert Cameron.*

Orchid Notes.

Epidendrum Godseffianum.—This is the newest addition to the genus Epidendrum which has been brought into cultivation, and it is named in honor of the manager of the great establishment at St. Albans, from which so many fine things have been distributed. The plant came in with large importations of Cattleya labiata, and from this it is safe to assume that the treatment adapted to this Cattleya should also suit the Epidendrum, and so it has proved with us here. Epidendrums are the oldest of known Epiphytes, and at the beginning all such were called Epidendrums by Linnæus, but, as material came in, it soon became evident that a division was necessary, for even Dendrobiums were included, until at least nine species were known to science at the time the name was given by Swartz, himself a pupil of Linnæus. Epidendrums, as a class, are not much in favor with cultivators, there being but few that are showy enough to meet the popular demand at the present time, and it is to be feared that E. Godseffianum will not be much sought after, unless the fashion changes. The flowers, about an inch in diameter, are produced sparingly on long branching stems, and all their parts are of a pale olive green, except the lip, which is white, faintly lined with purple. This Epidendrum is a very free grower when placed on blocks, with a little moss to hold the moisture about the roots. It is not easy to place the plants in pots as the bulbs have a habit of ascending as they grow each year one above another, evidently on trees in their native country, Brazil.

Lælia præstans.—Last fall we received a number of small pieces, newly imported, of this dwarf-growing Lælia, and as they seemed to possess but little vigor they were all pegged on to a piece of Fern-root, hung up in the cool house and left to take their chance. All that was done was to spray them occasionally with the hose; they started at once, remaining in the cool house until a little heat was necessary to complete growth in the middle of winter, when they were removed to the Cattleya house until spring. Then a new growth commenced, and this is now producing a number of flowers, many of the bulbs having two-flowered scapes, and others one each. They are still in the cool house, but will be removed after flowering, to complete their growth and ripen. Lælia præstans belongs to the L. pumila section, of which it and L. Dayana are regarded as being mere varieties. L. Dayana flowers a few weeks sooner than L. præstans, the flowers are smaller, the lip is richer in color and they both thrive under the same treatment, that is, a cool house in summer and a little more warmth in winter. It is a pity that L. præstans is not more common in collections; it has always been rare in a cultivated state, but is, perhaps, more often seen in this country than in Europe. The flowers are very large in comparison to the size of the plant itself, the leaf and bulb do not exceed four inches in length, while the flowers are over three inches across, round in outline, owing to the breadth of the bright rose-colored sepals, while the lip is a rich purple in front. It is worthy of remark that the plants have thriven on the block of Fern-root far better than if they had been put in small pans or pots, where, in hot weather, the trouble of keeping them watered is considerable. The roots have penetrated a mass six inches in thickness, and are fast appearing all over the block.

Dendrobium Phalænopsis Schrœderianum.—There is little danger of noting too often or commending too highly this plant, with its free growth and flowers of varied and beautiful coloring, ranging from rich dark purple to the most delicate tint of pink, and produced on long and gracefully arching sprays. We now have more than fifty plants just coming into bloom, and the growth made this past season is of the kind to make glad the heart of the cultivator, for it is a great deal stronger this season than last. Old bulbs that flowered several years ago are now pushing flower-spikes again, even though they have traveled more than half round the world. It is quite a common occurrence for young plants to be produced from the upper parts of the old bulbs, and these can be taken off when matured, and if potted in small pots or pans and suspended in a warm house they soon make good flowering plants. We have many that were taken off last spring, and all are now about to bloom; for this reason it is safe to say that this Dendrobium will never be lost to cultivation. The smallest-sized pans are the best to grow the plants in, as we have found that if the material becomes the least sour or overwatered the young growths soon rot off in dull weather in summer. It is risky to water them overhead in the growing season for this same reason, except in the morning of a very hot day, when quick evaporation is assured. D. Phalænopsis is essentially a warm-house plant, and those who do not have a house that can be kept at a minimum of sixty degrees in winter had better not try many, or loss may occur. It is best to suspend the plants to the roof where the air is more buoyant, and the snails are then easily kept away from the roots; wood lice should also be looked after in the flowering season, as we find that they sometimes eat the blossoms themselves.

South Lancaster, Mass. *E. O. Orpet.*

Forcing Tomatoes.

NOW is a good time to sow seed for a succession crop of tomatoes, so that the plants may be well under way before the days become too dull and dark. Some growers still adhere to the practice of striking cuttings in place of growing plants from seed, but the seedlings are no more trouble and are in many ways preferable. The plants when large enough should be pricked singly into three-inch pots, and again into five-inch pots as they require it, using a compost of three-fourths fibrous loam and one part leaf-mold and pulverized sheep-manure in equal portions. They should have a light airy position and be placed well up to the glass to prevent them becoming drawn. They may be fruited in pots or boxes or in a bed, but boxes are preferable, and will in most cases be found the most convenient. A very suitable and easily handled size is eighteen inches long by twelve inches wide and nine inches deep, which gives ample room for two plants. The boxes should be filled only two-thirds of their depth at first, the other space being left for a top-dressing as the plants require it. They must be carefully and regularly watered, and there will be no necessity for giving liquid-manure until after the fruit is set, when they may have a weak solution applied about twice a week.

The plants should be trained to a single stem, all side shoots

being pinched off as they appear. Half the leaf is sometimes cut off, but this is not advantageous unless the plants are overcrowded. The height of the plants must be regulated by the convenience of the house, but after four or five clusters of fruit have set they will in most cases be high enough, and the points should then be pinched out, and all lateral growths carefully removed, to concentrate the vitality of the plant upon the work of maturing the fruit. Sometimes the fruit will set naturally, but it is always safest to resort to artificial pollination.

A light well-ventilated house, with a medium supply of bottom heat, where a temperature of sixty degrees can be maintained at night is most suitable. On bright days the thermometer may run up to eighty degrees, but every advantage should be taken to admit fresh air. As to varieties, there are several adapted for forcing, but for a good reliable variety the Lorillard is still the best all-round forcing Tomato at command.

Tarrytown, N. Y. *William Scott.*

Chrysanthemums.

THE earliest Chrysanthemum blooms are now open, and the time between now and the end of November will be full of interest to all lovers of this best of autumn flowers. By attending carefully through the early summer to stopping the shoots, and later, to tying, specimen plants should now be in good shape. All that can be done from this time forward is to attend carefully to disbudding. We allow one bloom only to a shoot, which looks scant for a while, but experience has shown that one good bloom with a stout stem is preferable to half a dozen small ones.

We shall continue giving abundance of water, with liquid-manure every few days, until the blooms begin to open, with less and less afterward, keeping the roots and atmosphere drier during the blooming season. Under this treatment the flowers are not so liable to damp, and the color holds better.

Plants for blooms should have all their buds set by this time. They should be fumigated several times before it is too late. After the flowers open it is dangerous. With these plants, as well as those in pots, less water will be needed after the blooms open.

All kinds of buds have, no doubt, been taken, "first crowns," "seconds" and "terminals." It is most interesting to watch these various buds as they open and note which ones are the best for our purpose.

In the houses abundant air should be given, but draughts from the windward side should be guarded against, since they increase the liability to mildew and spot, which disfigures the foliage badly. We use a little fire-heat on damp days and severely cold nights.

Wellesley, Mass. *T. D. Hatfield.*

Lime for Chrysanthemums.—Now that the buds are all set, these plants require liberal feeding, but care must always be taken to avoid overfeeding. The Chrysanthemum has a strong digestion, but even the most voracious plants are only capable of taking food in very weak solution, and if strong fertilizers are given they are worse than wasted, because the general health of the plant is impaired; the soil becomes sodden and sour by the accumulation of unwholesome acids, and the roots cease to act, so that, instead of feeding rapidly, the plants come to a standstill. It is good practice to change the fertilizer frequently, and an occasional application of lime will be of great service not only in the way of sweetening the soil, breaking up insoluble compounds and making them available for plant-food and clearing the pots of worms, but it is believed, also, that it actually strengthens the feeding properties of the plant. It is held that lime thickens the secretion inside of the root-hairs, and thereby assists them to absorb food more rapidly. Whether this is actually true or not, all experienced Chrysanthemum-growers know that lime is of great service in helping to build up buds and flowers, even although it is only to a limited extent plant-food in itself. Perhaps the most convenient way of applying lime is to place a quantity of it in a tub or other receptacle, then fill it up with water, stir freely, and allow it to stand overnight. The sediment will then be at the bottom, and the clear water may then be drawn off and applied to the plants. The parts of the lime which the water holds in solution will be found to produce the desired effect.

Tarrytown, N. Y. *William Scott.*

Gloriosa superba.—It was Mr. Orpet, I think, who once said in Garden and Forest that "we learn much often by our failures." This may be true, but I have a great many failures, and usually do not profit much by them. Among failures which have conspicuously left me without a trace of gain is that with Gloriosa superba. The tubers of this plant, year after year, start at their accustomed season with apparent vigor, but the stem, after reaching a height of six inches, invariably yellows and dies off. I shall be pleased to know the reason and the conditions of water, air and temperature requisite to grow this plant successfully.

Elizabeth, N. J. *J. N. G.*

Correspondence.

When to Transplant Conifers.

To the Editor of Garden and Forest:

Sir,—I observe in your issue for September 19th, that Mr. Orpet recommends the transplanting of Conifers in autumn, and I have seen the same practice commended elsewhere. Mr. Robert Douglas, of Waukegan, Illinois, opposes, I understand, the fall planting of evergreens. Is there any peculiarity in our inland winters which makes it unwise to treat Conifers here as they are treated in the east? If it is true that the best practice varies in different sections, that is, if it is advisable to transplant Conifers here in the spring and transplant them in autumn throughout the Atlantic coast region, then your readers who reside in both sections should know it.

Highland Park, Ill. *W. C. Egan.*

My experience agrees with the recommendations of Mr. Orpet that autumn is a favorable time for transplanting Conifers. I may add that when the conditions are favorable, August is a better month than September, and the last half of July is quite as good as August, since nearly all Conifers finish their season's growth before the 4th of July. My first experiment in summer transplanting was made more than thirty years ago. At that time many writers were stating in the agricultural papers that June was the best month for transplanting evergreens, and even Henry Ward Beecher wrote an account of his success in transplanting at that time, although June is the worst month in the season, as Conifers are then making their most vigorous growth. We bedded out more than fifty thousand Pines, Firs and Spruces, beginning on the 5th of July and ending on the 25th of September, during which period we planted every day except Sundays. Each planter had a tin pan in which the trees stood in a puddle while he was making a trench. We placed a few branches with the leaves on around the beds so as to give the young trees a partial shade, but at the end of four days these branches were removed to the new plantings, and we found that the first plantings were throwing out new roots. Of all the trees transplanted we did not lose five per cent., except of the Pines, which were transplanted in September, and not one of the Pines which were planted after the middle of Septemcer survived the winter. Experience confirms what one would naturally suppose, that planting trees in full foliage late in autumn must be unsafe, for after the ground is cold and the air is cold they will not throw out roots to supply the moisture which evaporates from the leaves. The trees we planted in July and August looked, on the following autumn, like trees which had been transplanted two years. We find little loss in transplanting Conifers of medium size in summer or early autumn, but our experience teaches that it is not advisable to ship Conifers when there is danger of hot or drying weather, with the chances of delay in transit and neglect at their destination.

I am satisfied by long experience that the safest period for transplanting Conifers is that from the time when the ground is settled in spring until the tree begins to make new growth.

Waukegan, Ill. *Robert Douglas.*

It was the prevailing belief some years ago that the only safe time for planting conifers is about the middle of May, or as soon as the buds begin to burst into growth, and I still consider this time the best for all ordinary planting of evergreens, for the reason that they can be shipped in the early spring much more safely than at any other time of the year. They are less liable to heat while in a dormant condition, and no other class of plants will heat and spoil so quickly. Even with the greatest care they often arrive at their destination in bad condition; espe-

cially in the summer months, when a few days' transit is sufficient to ruin them. At the Arboretum I have had occasion to remove them at various seasons of the year, and I have come to the conclusion, where the plants are to be moved but a short distance, and are kept out of the ground only a short time, that they can be transplanted as safely from the last of August to the last of October as they can be in the spring. I have removed Spruces, Thuyas, Pines, Retinosporas, Junipers, Hemlocks and Yews in large quantities from the middle of September to the latter part of October with little, if any, loss. In fact, those moved about the 1st of June suffered more than those transplanted late in October under similar conditions.

The one indispensable condition for success is never to allow the roots to become dry, or nearly dry, and to have good, deep, well-pulverized soil all ready to plant them in. If planted well and firmly they will require but little water unless the season is very dry, and even then one good soaking when they are first planted will generally suffice. Many valuable trees are killed by overwatering, and thus causing the roots to rot. Last fall we had occasion to move several hundred conifers in October to make room for a new plantation of shrubs, and all the species above mentioned were represented in the lot. They were carefully dug and planted on the same day, and at this time ninety-eight per cent. of them are in good condition; in fact, they are in much better condition than another lot of about the same number that was transplanted from the last of May to the first week in June. Conifers, as a rule, seem to make new roots about September, or as soon as the ground begins to get moist again after the summer droughts, and if they are not carried too far this is a favorable time to transplant them. The sum of the whole matter seems to be this: Where trees are to be transported a long distance it is safer and better to plant them as soon as the ground begins to get warm in spring. Where the plants are close at hand, or need to be carried comparatively short distances, and can be handled at once when they arrive, from the last week in August to the middle of September is an equally safe time, especially if a light mulch can be put around the roots at the approach of freezing weather, although the lot I have spoken of had no mulch whatever.

Arnold Arboretum. *Jackson Dawson.*

Exhibitions.

The Horticultural Institute held at Fredonia, New York.

THE state institutes, which have been held in Chautauqua County, New York, each fall during the past three years, have been remarkable for their excellence and for the many exhibits of fruits, flowers and vegetables made each year. The attendance at the meetings has also been good, although the institutes occurred when nearly all the horticulturists of this region were in the midst of harvesting, packing and shipping the grape crop. Grapes are by far the most extensively cultivated fruit of this section. The grape-growers are a wide-awake body of men; they are on the lookout for all new ideas which can assist them in the work that occupies nearly all their time, from the beginning to the close of each year, and in this respect they excel most farmers, who are slow to take advantage of new methods.

The third annual grape, fruit, flower and vegetable show and horticultural institute was held in Fredonia, New York, September 26th, 27th and 28th. While, in making out the programme of exercises, the particular needs of the grape section were considered; nevertheless, some features of this institute have more than a local interest, and, indeed, should attract the attention of horticulturists in all parts of the country.

The exhibits of grapes and other fruits have always possessed the greatest interest. The various growers have exhibited their products in friendly rivalry and entirely without compensation, as no premiums were offered for the best shown. This same course was again followed this year, but another element was introduced, in accordance with a suggestion made by George T. Powell, of Ghent, New York, that the grapes should be judged in a systematic manner with regard to the following points: Flavor, size, color, symmetry and firmness. Flavor was valued at ten points and each of the remaining items at five points. This allowed thirty points to represent perfect fruit. All plates of Concord and Niagara grapes were examined in accordance with this standard by a committee of two, of which Mr. Powell was the chairman; three men were on the committee which judged the seedling fruits. The Concords were found to vary but little; the Niagaras, on the contrary, showed much variation in all points, except that of firmness.

Much interest was shown by grape-growers when the report of the committee was made, and although comparatively few records were read there were already indications of uniformity in the qualities of grapes grown on similar soils, and each soil seemed to possess a certain modifying influence on the grape grown upon it. This list is to be made as complete as possible, and it is hoped that the *Grape Belt*, of Brocton, will publish it in full. This new feature, introduced into the exhibit at the institute held in Fredonia, is full of promise for the future. It gives assurance that the time is coming when each horticulturist will make a close study of the character of the soil and of the particular varieties which will give the best results upon such soil. It marks that the time is passing away when a certain plant, as, for instance, the Niagara Grape, will be planted where the grower happens to want it, instead of where the plant will thrive best. It is also a step toward greater care and the exercise of greater judgment in the production and sale of fruits.

Another feature which is recommended to be introduced in future exhibits is the formation of a division which shall be devoted to the commercial side of fruit-growing, to packages and to methods of packing. This can also be made of great value if the idea is properly carried out.

With reference to the arrangement of future exhibits the committee suggests that—

"In order to get the most good from such a collection of fruits it would appear to be desirable that each label should bear the name of the variety grown, the name of the grower, his post-office address, and the composition and the character of the soil upon which the fruits were grown. By composition of the soil is meant whether it be sand, gravel, clay, etc.; its character may be described by telling of its elevation, drainage, etc. These data would be of the greatest value in determining the adaptation of particular varieties to the various soils of this region, and benefits of incalculable value should be derived from the proper study of such data. In fact, the horticulturists, not only of Chautauqua County, but of the entire country, are in great need of exactly this information, and the grape-growers of this region are now in a fair way of taking the lead in this important branch of horticultural investigation. It is recommended that in future exhibits made by the fruit-growers of this section the several varieties of soil may be well represented by the varieties of fruits grown upon them. In this manner the value of certain soils for the production of the many varieties of fruits can be clearly determined. The need of such work will be best appreciated by the men making the exhibits.

"The amount of fruit upon a plate should be uniform throughout the exhibits. It is obviously unfair for one grower to exhibit eight or ten times as much fruit as another if the two lots are to be judged by the same standards. When a certain number of individual specimens—five, for example—is upon each plate, the judgments will be more fair and accurate.

"The judges would also be materially assisted in their work if arrangements could be made by which all the exhibits of a certain variety could be brought together in one collection immediately before their examination. The work could then proceed with greater rapidity, and the labor of the judges be considerably lightened.

"The committee would further suggest the establishment of another division in the future exhibits which may be made in this region. The division is intended to include all those features which have a direct bearing upon the marketing of the fruit, but the study of fruit-packages and the methods of packing fruit should be made the principal aim of the division. Designs of new crates, the decoration or ornamentation of those now in use, the wrapping of individual specimens to preserve them or to render them more attractive, etc., all would tend to give shippers a better knowledge regarding the commercial side of the fruit industry, and the returns should increase directly in proportion to the amount of knowledge which may be gained in regard to the various demands of any given market, on the best methods of supplying such demands. It is believed by the committee that such an exhibit would rival in value the one in which are placed the varieties of fruits, labeled as above described."

Notes.

In converting Redwood into railroad ties it is stated that for every tie produced, which is worth thirty-five cents, timber to the value of $1.87 is wasted.

On Saturday, October 6th, a certificate was awarded to Mr. Walter Hunnewell by the Massachusetts Horticultural Society for blooms of the Chrysanthemum Mrs. E. G. Hill. This is unusually early to have flowers of the large Japanese sorts in perfection.

A California fruit-grower says that although there is a long list of fine Cherries which do well in that state, near the coast or in certain higher elevations away from the sea, the prime favorites are the Black Tartarian, Royal Anne and Purple Guigne.

The Garry Oak, Quercus Garryana, is fruiting abundantly this year on the north-west coast. Professor Francis E. Lloyd, of the Pacific University, Forest Grove, Oregon, will be glad to furnish acorns to those who apply to him for them and remit the postage.

In the canal at New Orleans, near the cemeteries, Pontederia crassipes has become naturalized so as to cover the entire surface of the water for a distance of hundreds of feet. Steamboats push them aside in their course, but the plants close together quickly as the boat passes and completely occupy the surface as before.

Up to the beginning of this month 280 car-loads of raisins had left California. Finding storage rates in New York, Philadelphia, Chicago, St. Louis and Kansas City as low as they are in Fresno, the growers have been rushing their raisins to these cities, where they are held by the combination, who will sell them gradually as the prices and the market warrant.

Among the Cannas of recent introduction Königin Charlotte is certainly one of the most beautiful, especially when grown under glass. The flower-buds are so densely set on the spike that as soon as one falls another is ready to open in its place, so that the spike seems to last longer than that of most other varieties, while its glowing colors are certainly unexcelled.

A log of mahogany measuring forty-four feet and four inches long, sixty inches by fifty-six inches across at the base and weighing 2,166 tons, was cut in Guatemala and floated down to Laguna, Mexico, a distance of over three hundred miles, from which port it was to have been sent to the World's Fair. All vessels refused to carry it, and after lying at Laguna for more than a year the log was sawed in two and lately brought to Nesmith Brothers' lumber-yard at Greenpoint, New York.

A correspondent of the *Rural New Yorker*, in reply to an inquiry for a low hedge plant which will succeed in dry soil such as is found near the top of a retaining-wall, recommends Ceanothus Americanus. This New Jersey Tea, as it is commonly called, rarely grows in dry soil to a height of more than two feet, and it would require little pruning. It would make an attractive mass of foliage, and its erect clusters of pure white flowers at the extremity of the leafy shoots of the year last for a long time.

The London *Journal of Horticulture*, for September 20th, gives an illustration of a plant of Eremurus robustus, in which the base of the flower-spike is some distance higher than the head of a man standing by it. In a descriptive note it is stated that at the time the picture was taken the plant measured ten feet eight inches to the summit of the spike, which was still growing, only about half the flowers having then expanded. We have seen some fine plants of this noble herbaceous perennial in this country, but none of them have attained the dimensions of this English specimen.

The Superintendent of Public Instruction in Pennsylvania recommends the celebration of Friday, October 19th, as Autumn Arbor Day, and urges the teachers of the public schools of the state to do what they can to make the observance of the day instructive. One reason for the appointment of this day is that many of the schools in the rural portions of the state close in the spring before the appointed Arbor Day. It might be added that the middle of October is an excellent time to plant deciduous trees in Pennsylvania, when the work is properly done.

The white scale, which has been so destructive to California Orange-groves, has never been found east of the Rocky Mountains until this year, when undoubted specimens of the insect were sent from Hillsboro County, Florida, to the Entomological Department, Washington. They were reported in such abundance on the trees as to make it probable that the species will thrive perfectly well in the climate of Florida, and unless active remedial measures are at once taken orange-growers there are threatened with great loss. The matter is being studied by an agent of the division, who has gone to Florida. Whether or not it will be found advisable to introduce the imported Australian vedalia into the groves of Florida remains to be seen.

It is not uncommon for shrubs and trees which flower in the spring to have a second season of bloom in autumn. When the wood ripens early, as it did in many places this summer on account of the long drought, the flower-buds on such plants often open under the influence of fall rains and warm growing weather. This second flowering is not so common, however, on trees and shrubs whose flowers are formed on the wood of the year, but we have recently observed several large Tamarisks of the late-flowering section, which are covered with pink plumes almost as thickly as they were in August. The branches seemed to have started into new growth at once when the autumn rains began, and they have had time to produce a new crop of buds, which are now fully open.

Chrysanthemums of the early-flowering sorts are now quite common in the market. In a collection of the kinds sent out by Delaux, which are grown in considerable quantities in the houses of Peter Henderson & Co., the best early white is Madame Gastellier. The flowers are of good substance, broad-petaled, with no appearance of an eye when fully developed, and they were ready for cutting in full form on the 1st of October. They remain perfect for a long time if the plants are kept in a cool place. This variety seems to be ten days earlier than Mrs. Bergmann, which was formerly considered the leading early white. Veuve Cliquot is an early yellow variety, which was ready to cut in quantity on the 2d of October. The flower is a rich chrome-yellow with an orange base. Madame Chauvin, which is quite as early, is a good-sized flower of a light rosy pink color. Monsieur Henri Galice is another early yellow. Other varieties coming into flower are J. B. Duvoir, a deep lilac; Madame Fleurot, with a light lemon-colored centre changing to white, and broad-cupped, rose-tipped petals; Eugene Farez, a light bronze, with yellow reverse; Professor Walter Croz, a fluffy cream-white; Georges Devred, a good yellow; Madame Jacob, lilac-rose and silver reverse; Gustav Grunerwalde, light rose-pink, and a white sport from this variety, which seems to be a first-rate flower, and some days earlier; Monsieur François Katzer, a disheveled Japanese variety, chrome-yellow, and orange reverse, and Monsieur F. L'Usmayer, a good orange. The earliest large-flowered Chrysanthemum in the collection is Marian Henderson, a good yellow, from Gloriosum, probably crossed with Mrs. Hardy.

Until a week ago Silver prunes and Ickworth plums came from California, together with Kelsey plums, and the latter commanded as much as $3.25 a box at the wholesale auctions. The only plums now arriving are Coe's Late Red, a medium-sized fruit—said to have a rich vinous flavor, but whose chief value is in its lateness. Last season these plums were on some of the fruit-stands in this city until the first of February. Peaches constituted the greater part of nearly fifty car-loads of California fruit sold here last week, the varieties including George's Late, Salway, Heath Cling, Lemon Cling, Orange Cling, Levi Cling and Morris White. Prices have been low, ranging from fifty to eighty cents a box. The limited supplies of Verdell, Muscat, Malaga, Cornichon and Tokay grapes sold quickly on the piers at $1.00 to $2.15 a half-crate to wholesale buyers, and boxes made up of Flame Tokays, Black Morocco and green Muscats, arranged attractively in bands of different colors, look very inviting. Stem-cut Florida oranges of good quality are in demand at $2.25 to $2.50 a box, at wholesale, but within the past week many boxes of windfalls have been hurried into northern markets. This bruised and decaying fruit in no case realizes the cost of freight, and many boxes have been left on the hands of the transportation companies by consignees unwilling to handle a worthless grade of fruit. Even the best Florida oranges are yet green, the only ripe and mature oranges being those from Jamaica. Grape-fruit from the same island, of fair size, sells for $1.75 a box, and immense blood-shaddocks, forty of which fill a barrel, are ten cents apiece at wholesale. Slender yellow pineapples, from Florida, known in the trade as the Egyptian Queen variety, may be had at fifteen cents apiece. The first cargo of 10,600 barrels of Almeria grapes is expected to arrive about the sixteenth of this month. About 8,000 barrels of cranberries have reached New York since September 1st, less than half the quantity handled during the same period last year. There is, however, no advance over the prices of last year, and choice, dark Cape Cod berries may be had at $8.50 a barrel.